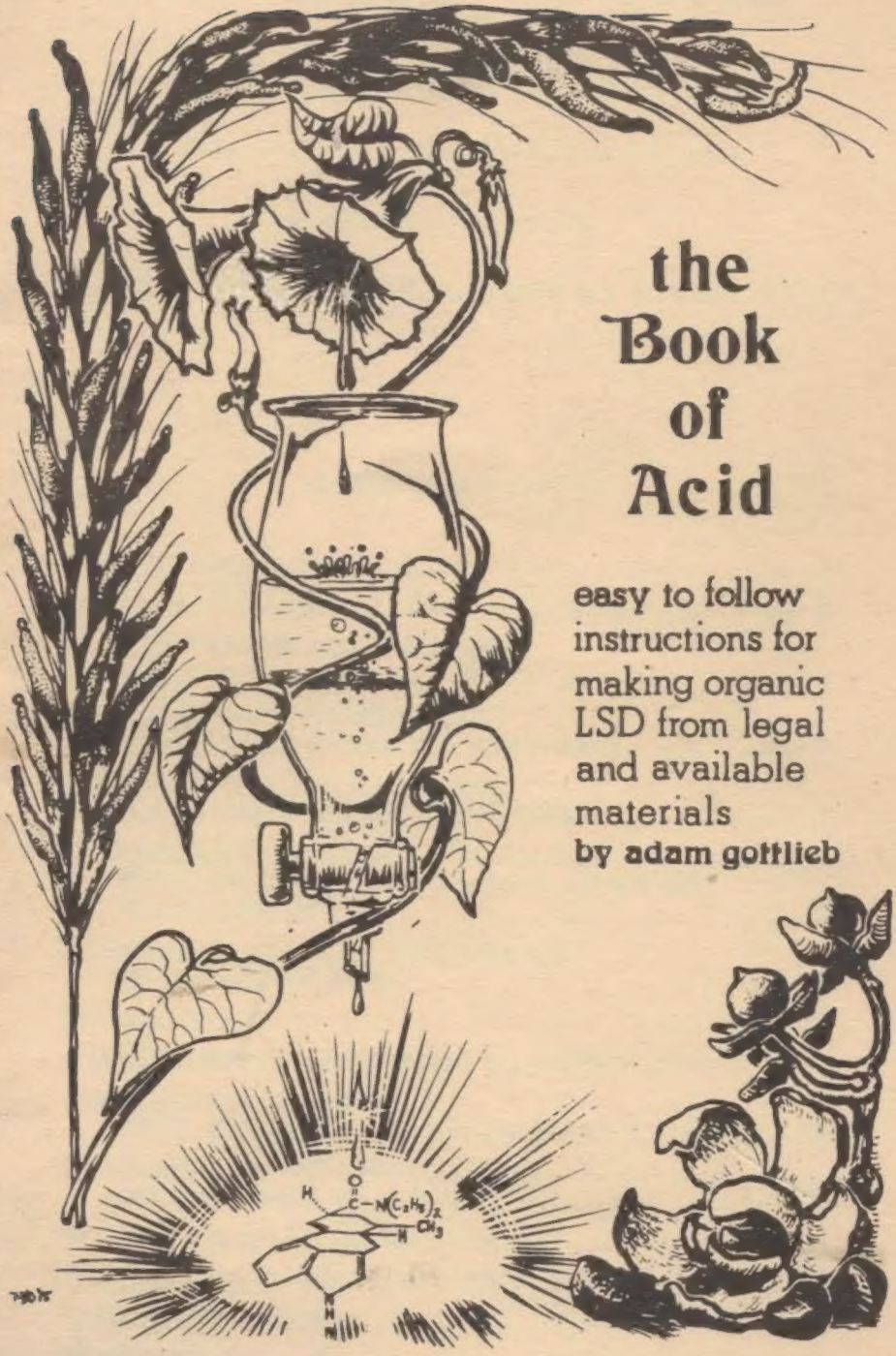

the Book of Acid

easy to follow instructions for making organic LSD from legal and available materials

by adam gottlieb

the Book of Acid

by adam gottlieb

COVER AND ILLUSTRARTIONS BY LARRY TODD

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WHY THIS BOOK WAS WRITTEN

When Dr. Albert Hofmann of Sandoz Chemical Works in Basel, Switzerland first created LSD-25 he did so by combining diethylamine with lysergic acid derived from ergot alkaloids. Ergot (*Claviceps purpurea*) is a fungus which sometimes infests the living kernels of rye and other grains. During the early 1960's while LSD gained popularity as a drug for consciousness expansion and pleasure, underground chemists used such ergot alkaloids as ergotamine tartrate and ergonovine maleate as the base for the preparation. After the illegalization of LSD stern government controls were established in the USA limiting the importation and sale of all ergot alkaloids. Since that time one of the most difficult tasks for the LSD chemist has been to obtain suitable starting materials for his work. Ergot and its derivatives became illicit commodities which were smuggled into the country and sold at outrageous prices. Often they were severely diluted with other substances just as cocaine and heroine are cut. A serious underground chemist could not always be certain of what he was buying. This situation is as bad today—if not worse.

We feel that it is time to offer some alternatives to this atrocious situation. Fortunately unlimited amounts of ergot alkaloids can be produced from a microscopic quantity of the fungus by the relatively simple process of cultivation in a nutrient solution. This can be done at home in ordinary gallon jugs.

Furthermore, there are a number of other sources of lysergic acid related materials in the plant kingdom. These include the fungus *Aspergillus clavatus*, the seeds and other plant parts of the common morning glory, and the seeds of both the large and baby Hawaiian wood rose.

This book gives complete instructions for large volume cultivation of ergot and aspergillus with special nutrient formulas for extra-high alkaloid yield. It also gives information on increasing the lysergic acid content of morning glories and Hawaiian wood rose through soil chemistry and hormonal treatment. We also include detailed directions for extracting the alkaloidal material from each of the above sources and converting them into lysergic acid suitable for the manufacture of LSD-25. Two methods are then given for the manufacture of LSD-25. One uses lysergic acid as the base. The other uses any lysergic acid-related substance such as unconverted ergot or aspergillus alkaloids or lysergic acid amides derived directly from morning glory or wood rose seeds. For those who wish to get the most out of these processes we have included practical instructions for purification of the product and complete conversion of the main inactive impurity (isolysergic acid diethylamide) to pure LSD-25.

Most of the materials and equipment called for in this book are readily available anywhere. The names and addresses of

suppliers of the more difficult to obtain substances, such as bulk quantity morning glory and wood rose seeds and culture materials, are given at the end of this book.

LYSERGIC ACID AND THE LAW

Lysergic acid-related materials can be derived from several fungi including ergot (*Claviceps purpurea*), aspergillus species (a mold which grows on Roquefort cheese and long-stored foods), *Rhizopus nigricans* (found on breads, sweet potatoes and peaches), and *Geotrichum candidum* (which occurs widely on spoiled milk products and tomatoes).

These chemicals also occur naturally in several plants of the bindweed family including morning glory (*Ipomoea violacea*), baby Hawaiian wood rose (*Argereia nervosa*), large Hawaiian wood rose (*Merremia tuberosa*), ololuique (*Rivea corymbosa*) and some species of *Convolvulus* and *Stictocardia*.

Although the possession of lysergic acid derivatives or any plant material containing them is forbidden under Title 21 of the United States Code, this law is clearly unenforcible. Morning glories grow both wild and in gardens everywhere. The seeds are available legally from horticultural suppliers and herb vendors. The seed pods of both the large and baby Hawaiian wood rose are sold as dried ornamentals by many florists. To our knowledge no one has ever been prosecuted for possession or use of any of these plants. Officials of the former Bureau of Narcotics and Dangerous Drugs have ventured their own guess as to how this law would have to be interpreted. They have suggested that simple possession of these plants for ordinary horticultural purposes is permissible under the law, but that the moment a person consumes, processes or even grinds up these seeds he has apparently stepped beyond the sanctions of horticulture and has taken indictable steps towards using these materials for illicit "narcotic" purposes.

We are not trying to advise our readers as to how they may skirt through the loopholes of the law. We mention these facts only so that the reader may have some concept of the confused legal quagmire surrounding these plant materials. Nor are we recommending that our readers violate any law by following the procedures described in this book. We feel that it is our responsibility to remind the reader that LSD-25 is illegal in many countries including the USA. We convey this information purely as knowledge and hope that if anyone attempts to carry out the instructions contained herein, he will do so only in a time and place where all of the materials involved are legal to possess and use.

PREPARATION OF LYSERGIC ACID FROM ASPERGILLUS CLAVATUS

1) Starting the Culture

It is necessary to establish strong strains of Aspergillus culture before attempting to cultivate these in volume. To do so prepare or purchase ready-made a malt-extract agar or agar, brown sugar, milk medium. The medium is placed in cotton-stoppered slants or in covered but not airtight Petrie dishes and innoculated by submerging the Aspergillus. Allow the culture to activate for 10 days at 27°C.

2) Large-Scale Cultivation

Prepare the required amount of nutrient solution using the following formula:

50 g	Mannitol
5.4 g	Succinic acid
1 g	Potassium acid phosphate
300 mg	Magnesium sulfate ($MgSO_4 \cdot 7H_2O$)
100 mg	Ferrous sulfate ($FeSO_4 \cdot 7H_2O$)
100 mg	Zinc sulfate ($ZnSO_4 \cdot 7H_2O$)
1 ml	Hoagland A-Z trace element concentrate (See p. 15)
500 mg	L-tryptophan
10 g	Acetamide

Dissolve in distilled water to make 1 liter. Adjust to pH 2 with ammonium hydroxide. If necessary, acidity can be increased with citric acid. Sterilize nutrient.

Fill 1 gallon jugs about 2/3 way with nutrient solution. Sterilize and let cool to room temperature. Remove samples of Aspergillus culture from the surface of the starting medium and submerge in the jugs of nutrient solution. Stop jugs with loose cotton, shake solution thoroughly and let these sit for about 2 weeks at room temperature. The solution will turn cloudy-white and the culture will spread across its surface.

3) Extraction

Filter the solution through a nylon stocking or filter funnel with suction flask. The solid filtrant (that which does not pass through the filter) is cultural residue consisting mostly of mycelium. Discard this. Adjust the solution to pH 3 with tartaric acid solution (diluted hydrochloric acid or acetic acid may also be used). Extract impurities in a separatory funnel by combining each 1 liter of

solution with 350 ml of ethyl acetate, shaking well, allowing mixture to sit while separation occurs and removing and discarding the ethyl acetate layer, which contains the impurities. Repeat this procedure using fresh ethyl acetate. Adjust the solution to pH 8 with 5% sodium carbonate solution. Repeat the ethyl acetate washing two more times. Boil off excess water from the solution under reduced pressure (vacuum pump). Concentrate each liter of solution to about 100 ml. Prepare a 15% potassium hydroxide solution in water and methanol, equal volumes. (This solution can be purchased ready-made from Fisher Chemical Company.) Add 20 ml of this preparation to each 100 ml of concentrate. Boil this mixture for about 2 hours at atmospheric pressure. Allow most of the liquid to boil away until a syrup remains. Adjust this syrup to pH 6 with hydrochloric acid. Because of the extreme alkalinity of the syrup it will require quite a lot of acid to make the adjustment. Pour the syrup into watch glasses or glass baking dishes and allow solvent to evaporate. Lysergic acid crystallizes in leaflets (melting point = 240° C). Further purification can be accomplished by repeated recrystallization of leaflets from successive batches of distilled water. Before using the lysergic acid for synthesis of LSD-25 it must be extremely dry. To accomplish this dry it in a dessicator over lithium aluminum hydride for several days. The product will contain approximately 88% normal destrorotary lysergic acid and 12% isolysergic acid. These isomers need not be separated to use this material for manufacture of LSD-25.

PREPARATION OF LYSERGIC ACID FROM ERGOT (CLAVICEPS PURPUREA) CULTURE

1) Starting the Culture

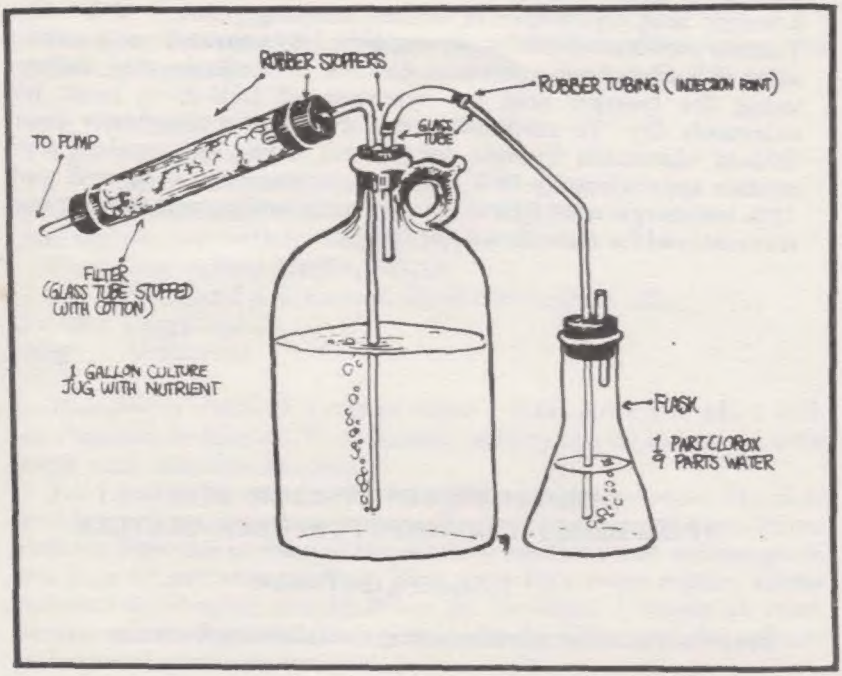
Prepare a nutrient medium using the following formula:

100 g	Sucrose
50 g	Chick pea (garbanzo) meal
1 g	Calcium nitrate
250 mg	Monopotassium phosphate
250 mg	Magnesium sulfate ($MgSO_4$ $7H_2O$) 4
124 mg	Potassium chloride
100 mg	Ferrous sulfate ($FeSO_4$ $7H_2O$)
100 mg	Zinc sulfate ($ZnSO_4$ $7H_2O$)
1 ml	Hoagland A-Z trace element concentrate (See p. 15)

Dissolve in distilled water to make 1 liter. Adjust to pH 4 with ammonium hydroxide solution to increase alkalinity or citric acid to increase acidity. Sterilize nutrient. This medium is placed in cotton-stoppered slants or in covered but not airtight Petrie dishes and innoculated with ergot. Temperature is maintained at 27° C; pH 4 is maintained by periodic testing and adjustment. The culture is allowed to grow for 2 weeks under these conditions. After this time clusters of the fungus will be seen on the surface.

2) Large-Scale Production

Construct aerated culture jugs as in the diagram below.



In a blender homogenize the activated ergot culture with its growing media. Fill all culture jugs 3/4 way with the formula given above. Inoculate the jugs with portions of the homogenized active ergot culture. Keep jugs out of bright light at 25° C for 10 days with constant aeration. After 10 days adjust the culture to 1% ethanol by introducing 2 oz. of 50/50 ethanol/water solution at injection point. Aeration must be momentarily stopped to do this.

As soon as ethanol solution is added reconnect glass tubing to rubber tubing at injection point and resume aeration. Let growth continue for 14 more days.

3) Extraction

After the total 24 days growth the culture is made acidic with tartaric acid solution and homogenized in a blender. After 1 hour adjust this to pH 9 with ammonium hydroxide solution. Extract in a separation funnel with benzene or 50/50 chloroform/isobutanol. Extract again with alcoholic tartaric acid. Evaporate to dryness under reduced pressure. The dried product is the tartrate salt of the mixed ergot alkaloids. In this form it is fairly stable. It must be converted to the less stable free base before commencing synthesis of LSD-25. To do so adjust to pH 9 with ammonium hydroxide, extract in chloroform and evaporate chloroform under reduced pressure.

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CULTIVATING MORNING GLORIES WITH HIGH LYSERGIC ACID CONTENT

General Growing Information

Morning glories grow wild or are easily raised in the garden. Sow seeds in their permanent location after danger of frost has passed. The seeds should be soaked in water overnight before planting to soften the hard seed coat and hasten germination. Some growers recommend nicking the seed coat with a sharp knife or single edge razor blade. This is not necessary if the seeds are soaked. The toxins which some seed companies put on morning glory seeds to discourage ingestion do not affect plants which are grown from them. Plant seeds not less than 6 inches apart and $\frac{1}{2}$ inch deep under fine soil. Provide fence, trellis, stakes, strings or other support for the vines.

Not all species and cultivars of morning glory yield lysergic acid amides. Use only Heavenly Blue, Pearly Gates, Flying Saucers, Summer Skies, Wedding Bells or Blue Star varieties. These are all cultivars of *Ipomoea violacea*. Several species of Mexican morning glory also yield lysergic acid products, but are not commonly available in the United States. These include Badoh Negro and Ololiuqui (*Rivea corymbosa*).

Techniques for Increasing Lysergic Acid Yield

Soil chemistry greatly influences lysergic acid yield. Because of species differences and variations in soil and other environmental conditions the total indole alkaloid yield of the seeds may range between .005% and .08%; in other words, properly selected and cultivated seeds may contain up to 16 times as much alkaloids as others.

For highest alkaloid production the soil should have a pH factor of about 6.5, a low potassium and high phosphate content. This can be checked with a soil test kit available at most nurseries or from Sears. A high phosphate content increases the formation of indole alkaloids. Low concentrations of potassium (approximately 1.5 per 100 parts dry soil) assists free tryptophan accumulation and biosynthesis and produces low indoleacetic acid content resulting in increased formation of indole alkaloids. To balance soil in this manner use sodium nitrate as a nitrogen source instead of potassium nitrate. For phosphate content use sodium acid phosphate instead of potassium acid phosphate.

Hormones also have a beneficial effect on alkaloid production in morning glories. Prepare a solution of 1 g gibberellic acid in 1 liter distilled water. When the plants are in the seedling stage place a few drops of this solution on the soil around each plant before watering. Repeat this procedure once every two weeks increasing the amount as the vine grows until the plant achieves full growth. At this time the dosage of gibberellic acid solution should be up to ½ oz. per plant. Although this hormone stimulates growth and alkaloid formation it also delays maturity and inhibits the production of flowers and seeds. Its use must be discontinued a few weeks before normal flowering time.

Gibberellic acid is available from chemical companies for about $5 per gram. If it cannot be obtained as a raw chemical there are several products available which contain this hormone. Some of the trade names are: Gibrel, Gibberellen, BigGrow, G.A., Big Tabs, Gib Sol, Brellin, and Plant Shoot.

Another type of hormone that increases alkaloid yield is alpha naphthalene acetic acid or any similar growth inhibiting auxins.

Although the greatest concentrations of lysergic acid amides are in the seeds of the morning glory, they are also present in the leaves and stems. Actually, because there is a greater mass of leaves and stems per plant than there is of seeds there is a greater total content of these alkaloids per plant in the herbaceous parts than in the seeds.

Lysergic acid amides are produced in several other plants of the bindweed family including baby Hawaiian wood rose seeds, which may contain three to six times as much per weight of seed as morning glory. These plants grow abundantly in such places as Maui and produce two crops of seeds annually. They are not practical to cultivate for seeds in cooler climates. If you are living

in the Islands, the soil condition and hormone treatment information described for morning glories can prove valuable for increasing alkaloid yield of any of the psychoactive wood roses.

EXTRACTION OF LYSERGIC ACID AMIDES FROM MORNING GLORY OR BABY HAWAIIAN WOOD ROSE SEEDS

Grind the seeds to a fine powder in a blender or other grinding device. Saturate the pulverized seeds with ligroine, naphtha or lighter fluid (non-scented) to form a slurry. Pack the slurried seeds into a chromatography column. Arrange a drop funnel above the column to slowly drip one of these solvents through the slurry for several hours. The purpose of this is to remove the unwanted fatty oils from the seeds. Test periodically to see if all of these oils are gone. This is done by taking a sample drop of the solvent after it has passed through the column and allowing it to evaporate on a clean watch glass. If it leaves a greasy film or stain, continue dripping solvent through it. If it evaporates clean, this step has been completed. It should take about 5 oz. solvent per one oz. seeds to accomplish this. Solvent may be recycled for future use by distillation.

Mix 900 ml chloroform with 100 ml concentrated ammonium hydroxide solution in a separatory funnel. Shake well and allow it to settle. Collect the chloroform layer from the bottom and discard the top layer. Drip the ammoniacal chloroform solution through the column and save the extract. Test frequently to see if any alkaloids remain in the slurry. This is done by dropping a sample of the extract as it comes from the column on a watch glass and evaporating it. Observe the watch glass under black light. If it fluoresces at all (light blue), there are still alkaloids in the slurry and extraction must continue. As soon as it no longer fluoresces stop the extraction.

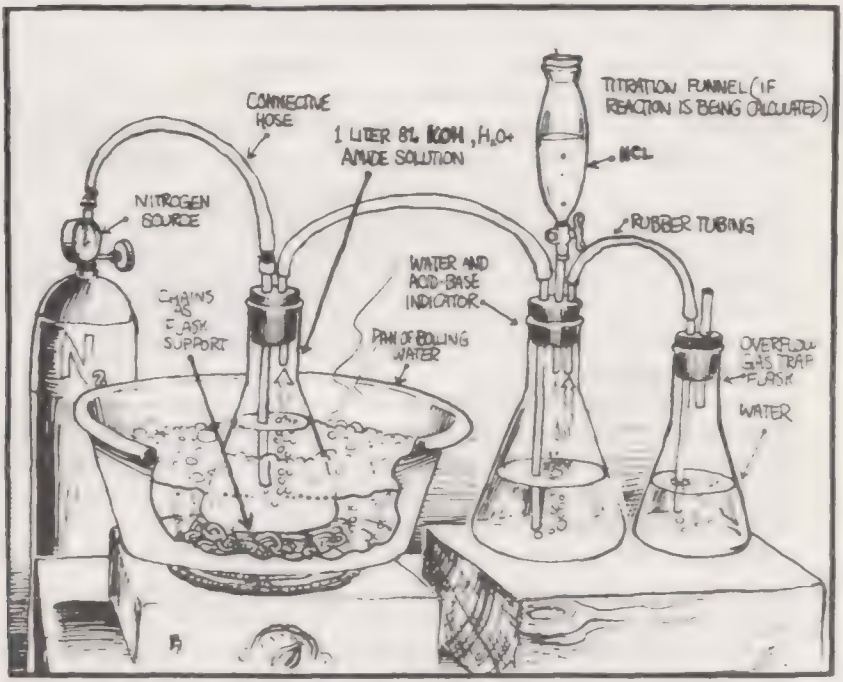
Evaporate the chloroform extracts. Collect the residue and dissolve it in the least possible amount of a 3% tartaric acid solution. The approximate number of moles of alkaloid present can now be determined by coloring the solution with acid-base indicator and titrating with this acid.

Transfer the solution to a separatory funnel. Rinse the flask with some tartaric acid solution and add these washings to the funnel. Make this solution basic with sodium bicarbonate solution. Add an equal volume of chloroform. Shake well and allow to settle. Collect the bottom layer. Add another equal volume of chloroform, shake, let settle and collect the bottom layer. Reduce the combined chloroform extracts to a solid by evaporation.

Scrape up and collect this substance with a stainless steel spatula. This is a mixture of semi-pure lysergic acid amides and can be used as the starting material for the manufacture of LSD-25 by employing one formula given later in this book, or converted into d-lysergic acid for use in the other formula.

CONVERTING LYSERGIC ACID AMIDES TO D-LYSERGIC ACID

Prepare a 15% potassium hydroxide solution in water and methanol, equal volumes (or purchase this solution ready-made from Fisher Chemical Company). Dissolve 50 g lysergic acid amides in 1 liter of methanolic potassium hydroxide. Evaporate the methanol under reduced pressure. Dissolve the residue in 1 liter of 8% potassium hydroxide and water solution. Heat this for one hour in a heat bath while passing through it a stream of nitrogen, as shown in the diagram below. If you are counting the moles of alkaloids present, the reaction may be followed by titration with hydrochloric acid of the ammonia which is evolved in the process.



If the reaction is not being followed the titration funnel acid base indicator and overflow gas trap flask may be dispensed with. If this is the case use a two hole stopper on glass tubing in the second flask as an outlet for gas pressure.

When ammonia gas is no longer being evolved the reaction is completed. This should take about one hour. Neutralize this mixture with tartaric acid, testing with pH indicator—neutral to congo red. Filter the solution through filter paper. Pour liquid filtrate into a separatory funnel, add an equal volume of ether, shake well, and allow to settle. Separate and discard the ether layer. Filter the water layer through filter paper. Evaporate the liquid filtrate under reduced pressure. The residue remaining will be mostly d-lysergic acid crystals. These may be purified further by repeated recrystallizations from successive batches of distilled water.

MAKING LSD-25

Two methods for the preparation of LSD-25 will be given here. The first requires lysergic acid as the starting chemical. The second can use as the starting chemical lysergic acid or any derivative such as free base ergot alkaloids or unconverted lysergic acid amides derived from morning glory or wood rose seeds.

Because the lysergic acid derivatives produced in the reactions of these processes are decomposed by light it is necessary to establish darkroom conditions illuminated only by red or yellow photographic darkroom lights, as described below. Have available a black cloth with which to cover the reagents whenever lights must be turned on. Rubber gloves should be worn to prevent absorption of ergot alkaloids through the hands.

PREPARATION OF LSD-25 FROM D-LYSERGIC ACID

Work under yellow light.

Suspend 42.88 g of d-lysergic acid in 1 liter of acetonitrile. Cool the suspension to about -20°C in a bath of dry ice and acetone. At the same time dissolve 70.56 g of trifluoracetic acid in 600 ml of acetonitrile and cool this flask to -20°C in the ice bath. Add the contents of this flask to the suspension, stir and let stand for about two hours. During this time the material in suspension will dissove and the d-lysergic acid will be converted into lysergic acid anhydride mixed with trifluoroacetic acid anhydride.

Now work under red light only.

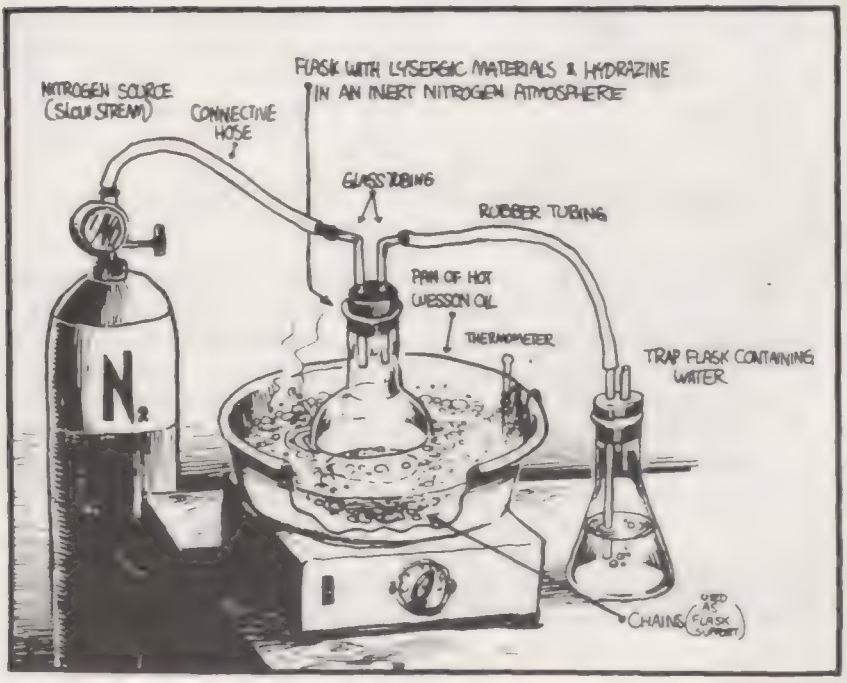
Dissolve 60.8 g of diethylamine in 1200 ml of acetonitrile. Allow the mixed anhydrides solution from the previous steps to warm to

room temperature and add them to the diethylamine/acetonitrile solution. Let this mixture stand in darkness for about 2½ hours. Evaporate the acetonitrile under reduced pressure. The residue remaining is LSD-25 with various impurities. Dissolve this residue in 1200 ml of chloroform and 160 ml of ice water. Shake this mixture well in a separatory funnel, let settle and collect the chloroform layer. Add fresh chloroform to the water layer and repeat extraction. Collect the chloroform layer and repeat chloroform extraction one more time. The combined chloroform extractions are then dried under reduced pressure over anhydrous sodium sulfate. The product is fairly pure LSD-25. Further purification is not necessary, but may be accomplished by recrystallization.

PREPARATION OF LSD-25 FROM ANY LYSERGIC ACID DERIVATIVE

Work under yellow light.

In a roundbottom flask combine two volumes of lysergic acid derivative with four volumes of anhydrous hydrazine. Set the flask in a hot oil bath and arrange an inert atmosphere as shown in diagram below.



Heat this mixture for 30 minutes at 112°C. Add three volumes of hot water and boil for 15 minutes. Cool in a refrigerator for several hours. Iso-lysergic acid hydrazide will crystallize.

Now work under red light only.

In an ice bath chill all chemicals to be used to 0°C. Keeping the reaction flask in the ice bath rapidly dissolve 28.2 g of the iso-lysergic acid hydrazide in 1 liter of 0.1 Normal hydrochloric acid. Add 1 liter of 0.1 Normal sodium nitrate solution and stir vigorously for 3 minutes. 1300 ml of 0.1 Normal hydrochloric acid is then added dropwise to the solution with vigorous stirring. After the last drop is added allow the solution to sit in the ice bath for 5-10 minutes. Neutralize the solution with saturated sodium bicarbonate solution. Combine the solution in a separatory funnel with an equal volume of ether. Shake well and let settle. Collect the ether portion and measure it in milliliters. Try to keep the gummy substance in the ether portion dissolved. Add 10 ml of diethylamine for every 100 ml of ether extract. Allow this to stand in total darkness at room temperature for 24 hours. Evaporate the ether under reduced pressure. The product is mostly iso-lysergic acid diethylamide and must be converted to LSD-25.

CONVERSION OF ISO-LYSERGIC ACID DIETHYLAMIDE TO LSD-25

Work under red light only.

Dissolve the residue containing the iso-LSD in a minimum amount of methanol. Stir in twice that volume of 4 Normal methanolic potassium hydroxide solution. Let this mixture stand at room temperature for 3-4 hours. Neutralize with dilute hydrochloric acid. Make the solution slightly basic with ammonium hydroxide solution. Combine the solution in a separatory funnel with an equal volume of chloroform (or ethylene dichloride), shake well, let settle, collect chloroform layer and discard water layer. Repeat extraction with another portion of chloroform. Wash chloroform extracts 4 times in a separatory funnel with a 25% volume of water. Evaporate the combined chloroform extractions under reduced pressure. The product is now a mixture of mostly lysergic acid diethylamide and some iso-lysergic acid diethylamide. The iso-LSD is not psychoactive, but the product may be safely used.

SEPARATION OF LSD-25 FROM ISO-LSD

To salvage and convert the iso-impurities one must resort to column chromatography as follows.

Work under total darkness or with a minimum amount of indirect red light

The mixed LSD isomers are dissolved in benzene/chloroform 3/1 solution. Use 50 ml of the solvent for each gram of LSD isomers. Pack a one-inch width chromatography column to six inches length with a slurry of basic alumina in benzene. Drain the solvent to the top of the alumina column and carefully add an aliquot portion of the LSD-isomer solution to the column. As the solution runs through the column turn out any red light present and follow the chromatographic movement with a long wave ultraviolet light. Use the UV light as sparingly as possible. It too can damage the product. Follow the fastest-moving blue fluorescent band. This is LSD-25. Collect this portion of the column and store in a light-proof container.

Collect the alumina containing the second fraction from the column. This contains the iso-LSD. Place it in a filter funel and wash it with methanol until UV light indicates that there is no more fluorescing material remaining in it. Collect the methanol washings and evaporate them under reduced pressure.

To convert this iso-LSD product follow the steps described in the section entitled *Conversion of Iso-LSD to LSD-25*. The product is then rechromatographed as described above. If the second chromatographic separation yields a considerable amount of iso-LSD, this can be stripped with methanol as before, converted to LSD-25 and chromatographed again for purity. These steps can be repeated until the remaining amount of iso-LSD is negligible and not worth the effort of further conversion and separation.

The collected alumina from the fastest moving fluorescent band of each chromatographing is combined and stripped with washings of methanol. The collected methanol washings are evaporated under reduced pressure to a syrup. This syrup is then allowed to crystallize slowly. This material can be converted into the more stable LSD tartrate by treatment with tartaric acid and then crystallized. Melting point 190-196°C.

PREPARATION OF HOAGLAND A-Z CONCENTRATE

Hoagland (A-Z) Reagent is a balanced combination of trace element concentrate which is added to nutrient solutions to insure that all trace minerals are present in the culture. Their presence apparently helps to increase alkaloid yield. It is prepared as two separate solutions. The desired amount is mixed from equal portions of solutions A and B immediately before use. Shake both solutions well before mixing.

Solution A: In 500 c.c. of distilled water dissolve 1 g $Al_2(SO_4)$, 1 g $CO(NO_3)$.$6H_2O$, 1 g $CuSO_4.5H_2O$, 11 g H_3BO_3, 7 g $MoCl_2.4H_2O$, 500 mg LiCl, 1 g $NiSO_4.6H_2O$, 500 mg KI, 500 mg KBr, 500 mg $SnCl_2.2H_2O$, 1 g TiO_2, 1 g $ZnSO_4$.

Solution B: In 500 c.c. of distilled water dissolve 100 mg As_2O_3, 500 mg $BaCl_2$, 100 mg $Bi(NO_3)_2$, 100 mg $CdCl_2$, 100 mg H_2WO_4, 500 mg H_2SeO_4, 500 mg MoO_2, 100 mg $HgCl_2$, 500 mg $KCrO_4$, 100 mg KF, 100 mg $PbCl_2$, 100 mg Rb_2SO_4, 100 mg VCl_2, 500 mg $SrSO_4$.

STERILE CONDITIONS

It is easy to infect cultures with stronger bacterial or fungal strains that will overrun and destroy the culture you are attempting to raise. To prevent this it is necessary to sterilize the culture medium prior to inoculation. This is done by autoclaving. Heat the container of medium to 212°F and maintain at that temperature for 30 minutes. Allow the medium to cool to room temperature before inoculating. All Petrie dishes and equipment which will come in contact with the medium or the inoculum must be similarly sterilized.

Care must be taken in working with the culture, especially in transferring the inoculum to the medium. The environmental conditions must be free from any possible contaminants. The following points should be observed. Work in a clean, uncluttered, dust-free room. Immediately before beginning work wash the work table and spray the room with disinfectant. Scrub your arms,

hands and fingernails with disinfectant soap. Wear simple clothing that is freshly cleaned. A short-sleeved t-shirt is ideal. A clean cloth or disposable surgeon's mask should cover the mouth and nose. Gargle with antiseptic mouthwash for added precaution. Cover hair with a surgeon's cap or shower cap. Let no drafts enter the room. Close windows, stuff door jambs. Allow no animals, insects or unnecessary people in the room. Let only sterilized equipment touch the medium and inoculum. Do not lean over the work. Avoid swift movements that may create drafts. Be neat and keep all materials within reach.

SUPPLIERS

Bulk quantity untreated morning glory seeds, baby Hawaiian wood rose seeds and large Hawaiian wood rose seeds are available inexpensively from Magic Garden Herb Co., POB 332, Fairfax, Calif. 94930.

Viable morning glory seeds for cultivation are available from Redwood City Seed Co., POB 361, Redwood City, Calif. 94061.

Prepared culture media and related materials can be obtained from DIFCO Laboratories, Detroit, Mich. 48232.

Any of the chemicals mentioned in this book are available from hundreds of chemical companies throughout the United States. Rather than attempt to list all of these in this little book we refer the reader to *Chemical Sources USA*, a directory found on the reference shelf of most university libraries. This directory contains an alphabetical listing of chemicals with a complete list of names and addresses of suppliers for each item. If you cannot find this directory in your library, it may be purchased through mail order from the publisher: Directories Publishing Company, Inc., Flemington, New Jersey.

If there is any difficulty in obtaining pure ergot fungus for cultivation, a tirp to a field of rye or some other grain should get you what you want. The infected grains have a dark-purplish or black color. Examine these under a microscope and compare them to photographs of *Claviceps purpurea* in any textbook on mycology. Do not let the ergotized grains become contaminated during or after collection.

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THE BOOK OF ACID

By Adam Gottlieb. This book gives easy to follow instructions for making organic LSD from legal and available materials. It shows how to produce ergotamine base in your own home and convert it into LSD-25. Techniques for cultivating other natural sources of lysergic acid are also given. Also included are methods of growing morning glories with high lysergic acid content, extracting the lysergic acid amides and converting them to pure LSD-25. Plus names of suppliers of morning glory and Hawaiian wood rose seeds. $1.50

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